

**Drought Allocation Plan
for the
Western Municipal Water District of Riverside County**

**Updated
May 2015**



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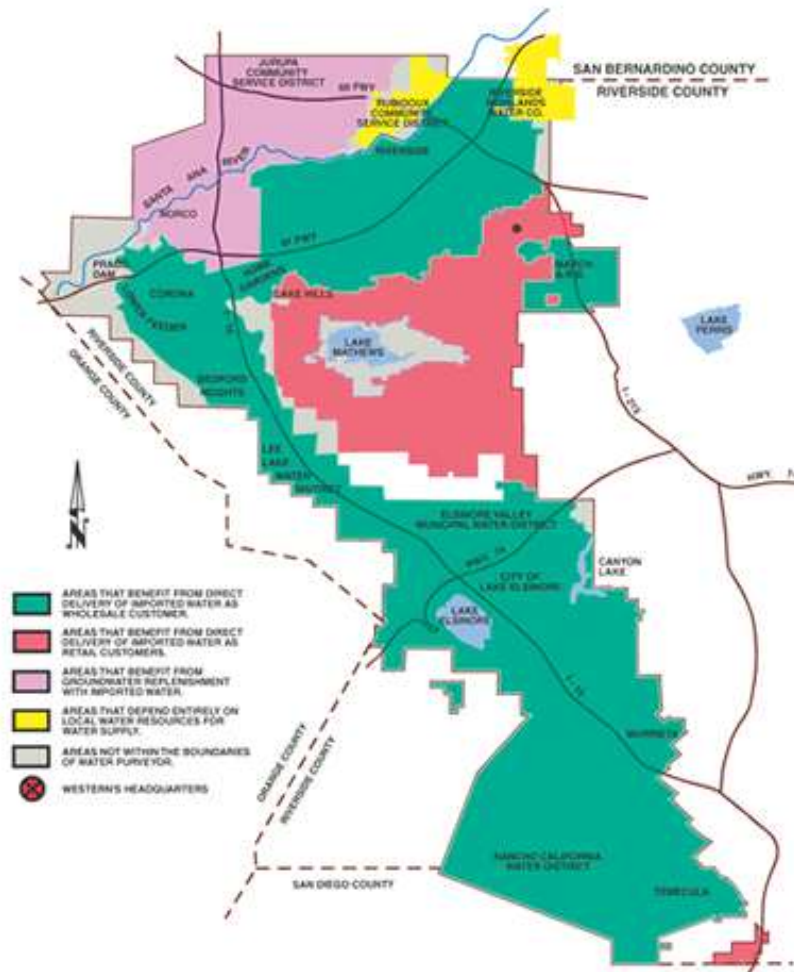
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Section 1 Introduction

The purpose of the Drought Allocation Plan (DAP) is to provide Western Municipal Water District of Riverside County (Western) and its wholesale customers with a means of allocating limited imported water supplies from the Metropolitan Water District of Southern California (Metropolitan) under various shortage conditions. The DAP is intended to help the region minimize the impacts of shortages and ensure an equitable allocation of imported water supplies.

The DAP will be used to allocate water for retail municipal, industrial, and agricultural purposes among the following agencies:

- Box Springs Mutual Water Company
- City of Corona
- City of Norco
- Eagle Valley Mutual Water Company
- Elsinore Valley Municipal Water District
- Lee Lake Water District
- Rancho California Water District
- Western Municipal Water District Retail Customers



Section 2 Drought Allocation Plan Preparation

A fourth year of dry climate conditions throughout the state and uncertainty about water availability from the State Water Project have increased the possibility that Metropolitan may not have access to the supplies necessary to meet total firm demands at some point in the future and may have to allocate shortages in supplies to its member agencies. To prepare for this possibility, Metropolitan staff worked jointly with member agencies to develop an updated Water Shortage Allocation Plan (WSAP) for 2015 and beyond. This plan, which addresses the principles adopted by the Metropolitan Board of Directors in the 1999 *Water Surplus and Drought Management Plan* (WSDM Plan), was adopted by Metropolitan's Board of Directors in December 2014. A summary of the 2007 plan and the 2014 update is included in Appendix B, attached.

To facilitate implementation of Metropolitan's plan at the local level, Western has developed this DAP. The DAP identifies the methods that will be used to allocate limited imported supplies among Western's wholesale customers, if and when Metropolitan implements its WSAP.

Wholesale Customer Coordination

In 2008, the initial preparation and implementation of a DAP for the Western service area required input from Western's wholesale customers. Recognizing the importance of wholesale customer involvement for the first-of-its-kind plan document, Western created a workgroup, made up of staff from Western and the potentially affected wholesale customers. For this update, Western staff simply modified the allocation methodology so that it was consistent with Metropolitan's recently updated WSAP plan. These changes in methodology were presented to wholesale customer representatives at a regular meeting hosted by Western's general manager in January 2015. As these changes, which are explained in Section 3, did not substantially change the plan outcome, the need for formal workshops was unnecessary to gain support for this update.

Section 3 DAP Supply Allocation Methodology

This section includes a description of the updated supply allocation methodology developed following the 2014 modification of Metropolitan's WSAP. The goal of the DAP is to provide an equitable means of apportioning imported supplies during periods where Metropolitan implements the various shortage levels of its WSAP. This allocation methodology is consistent with the approach defined within Metropolitan's plan and has been adjusted for local needs and conditions. Appendix A, attached, includes estimated retail agency allocations based on the following methodology.

Base Period Calculations

The first step in estimating retail demands and wholesale water needs in the allocation year is to establish a base period with established water supply and delivery data that approximates a base operating condition within Western's service area. **The base period for each of the different categories of demands and supplies is calculated using data from the two most recent non-allocation years (Fiscal Years 2012-13 and 2013-14);** exceptions to this methodology are noted in the following descriptions of base period calculations.

The following are the components of the Base Period calculation:

Base Period Total Demand: Total water demands for the base period are calculated by adding the Base Period Import Supplies (the demands on Western), and the Base Period Local Supplies.

Base Period Local Supplies: Local supplies for the base period are calculated using the two-year average of groundwater production, groundwater recovery, surface-water production, and other imported supplies. Non-potable recycled water production is not included in this calculation. (This is to address the impact of demand hardening due to recycled water use.)

Base Period Wholesale Demands: Firm demands on Western for the base period are calculated using the two-year average of retail Municipal & Industrial (M&I) demands.

Base Period Gallons per Capita Daily (GPCD): Conservation Demand Hardening occurs at the retail water use level as consumers install more conservation-saving devices and participate in available programs. In order to estimate conservation savings, Metropolitan requires each member agency to establish an historical baseline GPCD calculated in a manner consistent with California Senate Bill SBx7-7. Western's 10-year GPCD base period for this plan is 1999 through 2008. The calculated regional Base Period GPCD is 362. Reductions from the Base Period GPCD to the Allocation Year are the basis used to calculate the equivalent conservation savings in acre-feet.

Allocation Year Calculations

The next step in estimating water demands in the allocation year is to adjust the base period estimates of retail demand for population or economic growth, and to adjust for changes in local supplies.

Allocation Year Demand Adjustment: Total retail demands for the allocation year are calculated by adjusting the Base Period Retail Demands for growth.

Growth Adjustment: The lesser of 159.4 GPCD (value provided by Metropolitan), or the calculated base period for each agency, is applied to the change in population from the base period to the allocation year.

Allocation Year Local Supplies: Allocation year local supplies are estimated using the base period local supplies and should include any adjustments for gains and losses of local supply, and extraordinary increases in production over the base period. These adjustments are made to give a more accurate estimate of actual supplies in the allocation year, and in turn, more accurately reflect an agency's demand for supplies from Western.

Gain of Local Supply Adjustment: This adjustment accounts for planned or scheduled gains in local supply production above the base period, which are not due to extraordinary actions to increase water supply in the allocation year. These previously-scheduled increases in supply programs or local production should be added to the base period local supplies.

Loss of Local Supply Adjustment: This adjustment accounts for losses of local supply production from the base period. Losses of local supply, due to such things as hydrology or water quality, should be subtracted from the Base Period Local Supplies.

Extraordinary Increased Production Adjustment: This adjustment accounts for extraordinary increases in local supplies above the base period. Extraordinary increases in production include such efforts as purchasing transfers or mining of groundwater basins. In order not to discourage such extraordinary efforts, only a percentage of the yield from these supplies is added back to Allocation Year Local Supplies. This has the effect of "setting aside" the majority of the yield for the agency who procured the supply. The following table shows the percentages of the extraordinary increases in local supply that are counted in each level of supply allocation:

Regional Shortage Level (%)	Percentage Counted in Local Supply
1 (5%)	0%
2 (10%)	0%
3 (15%)	15%
4 (20%)	20%
5 (25%)	25%
6 (30%)	30%
7 (35%)	35%
8 (40%)	40%
9 (45%)	45%
10 (50%)	50%

Allocation Year Wholesale Demands: Demands on Western for the allocation year are calculated by subtracting the Allocation Year Local Supplies from the Allocation Year Retail Demands.

Allocation Formula and Accounting

The following table contains the elements used in the allocation formula. The formula was designed to be equitable on the wholesale level while helping to minimize hardships experienced by individuals and by the regional economy at the retail level.

(1) Regional Shortage Level	(2) Regional Shortage Percentage	(3) Wholesale Minimum Allocation	(4) Retail Impact Adjustment Maximum
1	5%	92.5%	0%
2	10%	85.0%	5.0%
3	15%	77.5%	7.5%
4	20%	70.0%	10.0%
5	25%	62.5%	12.5%
6	30%	55.0%	15.0%
7	35%	47.5%	17.5%
8	40%	40.0%	20.0%
9	45%	32.5%	22.5%
10	50%	25.0%	25.0%

Shortage Levels(1): The formula allocates shortages of Western supplies over ten levels: from 5 to 50 percent, in 5 percent increments.

Shortage Percentage(2): The maximum total regional shortage percentage of Western’s available supplies when compared to the sum of the demands in the allocation year.

Wholesale Minimum Allocation(3): The Wholesale Minimum Allocation is established to ensure a minimum level of wholesale water service (Western supplies) at the wholesale customer level, and sets the target for recognizing a wholesale customer’s ongoing investment in Western’s system. The Wholesale Minimum Allocation ensures that wholesale customers will not experience shortages on the wholesale level that are greater than one-and-a-half times the percentage shortage of Western’s regional water supplies. The Wholesale Minimum Allocation is equal to 100 percent minus one-and-a-half times the shortage level.

Retail Impact Adjustment Maximum(4): The Retail Impact Adjustment Maximum is the factor used to address major differences in retail level shortages associated with across-the-board cuts. The purpose of this adjustment is to ensure that agencies with a high level of dependence on Western do not experience highly disparate shortages compared to other agencies when faced with a reduction in wholesale water supplies. The Retail Impact Adjustment Maximum factor is calculated as the difference between the Regional Shortage Percentage and the Wholesale Minimum Allocation. The amount of the adjustment each wholesale customer receives is prorated on a linear scale, based on its dependence on Western at the retail level. The prorated amount of allocation is referred to as the Retail Impact Adjustment Allocation. For agencies that are 100 percent dependent on Western, this method will result in an allocation of Western supplies that, at the retail level, will result in a shortage equal to the Regional Shortage Percentage. In other words, through this allocation, no agency will experience a greater percentage shortage than the regional shortage percentage.

Conservation Demand Hardening Credit: The Conservation Demand Hardening Credit is calculated at the regional level in Metropolitan's WSAP. The value of the regional conservation credit is divided proportionally among the agencies within Western's service area that purchased imported water during the Base Period. The individual agency's volume of imported water is compared to the total of all agency purchases of imported water. The Conservation Demand hardening credit will be based on an initial 10 percent of the GPCD-based Conservation savings plus an additional 5 percent for each level of Regional Shortage set by the Board of Directors during implementation of the WSAP. The credit will also be adjusted for:

- overall percentage reduction in retail water demand, and
- Western's dependence on Metropolitan.

This provides a base demand hardening credit equal to 10 percent of conservation savings and increases the credit as deeper shortages occur, which is when conservation demand hardening has a bigger impact on the retail consumer. The credit also increases based on the percentage of an agency's demand that was reduced through conservation. This accounts for increased hardening that occurs as increasing amounts of conservation are implemented. Lastly, the credit is scaled to the member agency's dependence on Metropolitan to ensure that credits are being applied to the proportion of water demand that is being affected by reductions in Metropolitan supply.

M&I Allocation: The allocation of Western supplies to an agency for its retail demand is the sum of the Wholesale Minimum Allocation, the Retail Impact Adjustment, and the Conservation Demand Hardening Credit.

Allocation Example – Calculating Base Period Information to Determine Allocation Year Needs

The following example gives a step-by-step description of how the recommended formula would be used to calculate an allocation of Western's imported supplies to its wholesale customers and retail service area. This example is based on a Fiscal Year 2015-16 allocation using the average of Fiscal Year 2012-13 and Fiscal Year 2013-14 as the base period. The data used for this example was provided by each agency in late 2014.

Step 1: Calculate Base Period Retail Demand

The first step in developing an agency's allocation is to estimate the agency's retail level water needs. Two pieces of information are required to calculate retail level water needs:

- (1) The amount of local supplies that were produced in the base period, and
- (2) The amount of demands on Western in the base period.

Base Period Local Supplies are calculated using the average of production data from Fiscal Year 2012-13 and Fiscal Year 2013-14 for groundwater, groundwater recovery, surface water, and/or other non-Western imported supplies.

Base Period Wholesale Demands on Western are calculated using the same averaged time period as the Base Period Local Supplies.

Base Period Retail Demand can be calculated once the information described above has been determined. The sum of the Base Period Local Supplies and the Base Period Wholesale Demands equals the Base Period Retail Demand.

Step 2: Adjust Base Period Retail Demand for Growth

The second step in developing an agency’s allocation is to adjust the Base Period Retail Demand for growth that occurred since the Base Period. Based on Department of Finance statistics, the projected population growth in Riverside County was 1.12 percent for the period 2011 through 2013. The Base Period population is adjusted by 1.12 percent for each year between the Base Period and the allocation year. The change in the demand for water is calculated by multiplying the change in population by the lesser of 159.4 gallons per capita daily or the calculated base period GPCD for each agency.

Agency within Western	Applied GPCD
Box Springs Mutual Water Company	104.0
City of Corona	159.4
City of Norco	159.4
Eagle Valley Mutual Water Company	-
Elsinore Valley Municipal Water District	159.4
Lee Lake Water District	138.0
Metropolitan Water District	-
Rancho California Water District	159.4
Western Municipal Water District Retail	159.4

Allocation Year Retail Demand is the result of applying the growth adjustment to the Base Period Retail Demand. It represents a reasonable estimate of the total amount of firm water that an agency needs at the retail level in the year of allocation.

Step 3: Adjustment for changes in local supply from the Base Period

The third step in calculating each agency’s allocation is to calculate the agency’s local supply production in the year of the allocation. This is done by using Base Period Local Supplies that were calculated in Step 1 as a base estimate, and adding back any gains or losses in Base Period Local Supplies that are occurring in the allocation year. If an agency has undertaken extraordinary efforts to secure alternative supplies, this Extraordinary Increase in Local Supplies would also be added here.

Allocation Year Local Supplies are the result from adjusting the Base Period Local Supply for all of the changes listed above.

Step 4: Calculate Wholesale Water Needs in the Allocation Year

Now that both the Allocation Year Retail Demands and the Allocation Year Local Supplies have been estimated, the agency’s Allocation Year Wholesale Demand can be calculated.

Allocation Year Wholesale Demands on Western are calculated by subtracting the Allocation Year Local Supplies from the Allocation Year Retail Demands. Any demand that is remaining after the agency’s local supplies are accounted for represents demand for wholesale supplies from Western.

Dependence on Western is calculated as the percentage of an agency’s retail need that is met by Western wholesale supplies.

Step 5: Apply Base Period Conservation Demand Hardening Credit

The Conservation Demand Hardening Credit is calculated at the regional level in Metropolitan’s WSAP. The value of the regional conservation credit is divided proportionally between the agencies within Western’s service area that purchased imported water in the Base Period. The individual agency’s volume of imported water is compared to the total of all agencies purchases of imported water.

Allocation Example – Calculating a Supply Allocation in a Regional Shortage Level 3

This example will follow the allocation formula accounting, through a Regional Shortage Level 3 (15%). The table below shows the essential elements of the allocation formula under a Regional Shortage Level 3.

(1) Regional Shortage Level	(2) Regional Shortage Percentage	(3) Wholesale Minimum Allocation	(4) Retail Impact Adjustment Maximum
3	15%	77.5%	7.5%

Step 1: Calculate Wholesale Minimum Allocation

The Wholesale Minimum Allocation is calculated by multiplying the agency’s Allocation Year Wholesale Demand by the Wholesale Minimum Allocation percentage from the allocation table.

Step 2: Calculate Retail Impact Adjustment Allocation

The next step in determining this agency’s allocation is to calculate the Retail Impact Adjustment Allocation. Recall from the allocation table, the Retail Impact Adjustment Maximum factor is the difference between the Wholesale Minimum Allocation and the Regional Shortage Percentage. Under a Regional Shortage Level 3 (15 percent), the Retail Impact Adjustment Maximum factor available to any agency is 7.5 percent. Each agency’s Retail Impact Adjustment factor is calculated by multiplying the 7.5 percent Retail Impact Adjustment Maximum factor by the agency’s Dependence of Western, which was calculated in a previous step.

Step 3: Apply the Conservation Hardening Credit

Step 4: Add the Wholesale Minimum Allocation, the Retail Impact Adjustment Allocation, and the Conservation Hardening Credit to get the final M&I agency allocation.

The Wholesale Minimum Allocation, the Retail Impact Adjustment Allocation, and the Conservation Hardening Credit are added together to total to the M&I allocation.

Step 5: Add Unallocated Supplies

After each agency’s M&I allocation is calculated, each agency’s M&I allocation is added together to determine the total M&I allocation for all of Western’s wholesale customers. As with the example above, if the total M&I allocation is lower than the allocation that Western is receiving from Metropolitan, the surplus is allocated among the wholesale customers based on the proportion of each agency’s Wholesale Minimum Allocation to the Western’s total Wholesale Minimum Allocation. If the amount is greater than

the allocation from Metropolitan, then the next regional shortage level will be applied until the total M&I allocation is equal or less than allocation from Metropolitan.

Step 6: Total Allocation

The final step in calculating this agency's allocation of Western supplies is to sum up all of the elements of the allocation formula that were calculated above.

Section 4 Estimate of Retail Agency Allocation under Drought Allocation Plan

Western (retail) and the retail water suppliers within Western’s general service area are, to varying degrees, dependent upon Metropolitan for imported water supply. The following table summarizes the estimated impact of the Metropolitan Board of Directors-adopted (December 2014) WSAP process for the allocation of water supplies to Western’s general service area during ten levels of water supply shortage. The water supply available to Western is further allocated between the retail water suppliers in a fashion similar to the Metropolitan process.

MWD WATER SUPPLY ALLOCATION PLAN - 2014 UPDATE			
Regional Shortage Level	MWD Declared Shortage	Import Water Available ¹	Regional Reduction Level ²
0	-	-	-
1	-5.0%	72,689	-5.1%
2	-10.0%	72,689	-5.1%
3	-15.0%	71,496	-6.7%
4	-20.0%	69,489	-9.3%
5	-25.0%	67,482	-11.9%
6	-30.0%	65,475	-14.5%
7	-35.0%	63,469	-17.2%
8	-40.0%	61,462	-19.8%
9	-45.0%	59,455	-22.4%
10	-50.0%	57,488	-25.0%

FY 2014 Import Demand = 76,614 acre feet.

1. The total *Imported Water Available* subject to change based on the certification of local production at the end of a fiscal year.
2. *Regional Reduction Level* percentages are based on FY 2014 imported water demands, not the base period demands. The reduction levels also apply to the region as a whole, not to the individual retail agencies.

Appendix B includes an overview of Metropolitan’s WSAP methodology for shortage allocations. Western will use a process similar to that of Metropolitan to allocate imported water supplies among the retail water agencies within Western’s general service area. Agencies that purchased water in the Metropolitan base period (Fiscal Years 2012-13 and 2013-14) share in the allocation of imported water. These agencies include: Box Springs Mutual Water Company, the City of Corona Department of Water and Power, Eagle Valley Mutual Water Company, Elsinore Valley Municipal Water District, Lee Lake Water District, Metropolitan, the City of Norco, Rancho California Water District, and Western Municipal Water District for its retail water service area. The following agencies within Western’s general service area did not purchase imported water during Metropolitan’s base period and, therefore, are not included in the allocation of imported water supplies: Home Gardens County Water District, Jurupa Community Services District, the City of Riverside Public Utilities, Riverside Highlands Water Company, and Rubidoux Community Services District.

The following table summarizes the estimated imported water supply available to the retail water suppliers within Western’s general service area at each of Metropolitan’s shortage levels 1 through 10. These values are estimates as the actual volumes of water available to each agency are dependent on the production of local

supplies throughout Western’s imported agency region and is reconciled at the completion of each fiscal year during which a Metropolitan water allocation is in place.

Shortage Level	Box Springs MWC	City of Corona	Eagle Valley MWC	Elsinore Valley MWD	Lee Lake WD	MWD	City of Norco	Rancho California WD	Western MWD (Retail)	Total
1	88	14,643	488	16,734	3,104	11	171	17,797	19,646	72,689
2	88	14,643	488	16,734	3,104	11	171	17,797	19,646	72,689
3	84	14,275	437	16,639	3,098	10	154	17,455	19,339	71,496
4	81	13,799	411	16,230	3,037	9	143	16,946	18,828	69,489
5	77	13,323	385	15,822	2,976	9	133	16,436	18,317	67,482
6	74	12,847	360	15,413	2,915	8	122	15,927	17,806	65,475
7	70	12,371	334	15,005	2,855	7	111	15,417	17,294	63,469
8	66	11,896	308	14,596	2,794	7	101	14,907	16,783	61,462
9	63	11,420	283	14,188	2,733	6	90	14,398	16,272	59,455
10	59	10,944	257	13,780	2,672	6	80	13,888	15,760	57,488

Appendix A includes spreadsheets detailing the calculation of retail agency allocations under Metropolitan shortage allocation levels 1 through 10.

Section 5 Allocation Plan Implementation Elements

The following are the implementation elements that are necessary for administering an allocation during a time of shortage. These elements cover the processes needed to declare a shortage level as well as providing a penalty rate structure for enforcing each agency's allocation.

Implementing an Allocation of Supplies

At this time, it is anticipated that the only time Western would allocate imported supplies from Metropolitan is if Metropolitan is forced to allocate its supplies through its WSAP process.

Setting the Shortage Level

Should Metropolitan implement the WSAP, Western staff will determine the appropriate Shortage Level so that supplies allocated at the Western service area level are equal to or less than the Metropolitan allocation.

Simultaneously, Western will determine whether any appeals need to be filed with Metropolitan.

Allocation Period

The allocation period for the DAP will be consistent with the period defined within Metropolitan's WSAP. This allocation period covers twelve consecutive months, typically from July of a given year through the following June. This period was selected by Metropolitan so as to minimize the impacts of varying State Water Project allocations. It was also selected to provide wholesale customers with sufficient time to implement their outreach strategies and rate modifications. Metropolitan has indicated that it is their intention when possible to set allocations through the declaration of a shortage level at the April Board of Directors' meeting preceding the next fiscal year.

Determination of Penalties

At the end of the allocation year, Metropolitan will bill Western for any accrued penalties. Penalties will be based on the water rates in effect the last day of June of the allocation year. Western will bill its agencies for penalties based on its penalty rate structure. Any excess funds collected will be refunded proportionately to those agencies that paid penalties.

Allocation Surcharge

At the end of each allocation year, Metropolitan will bill Western for any accrued Allocation Surcharges ("surcharges") based on Metropolitan's adopted WSAP. Western will pass-through Metropolitan's surcharges to its retail agencies (which includes Western's own retail customers) based on Metropolitan's allocation surcharge rate structure described at the end of this section.

If Western exceeds its total allocation from Metropolitan for the year, the underutilization of any individual retail agency's allocation will be reallocated that year to other retail agencies that exceed their allocation in accordance with the same methodology used when Western exceeds its total Metropolitan Tier 1 Maximum. This methodology is described in Western's Board of Directors-adopted "Determining Water Rates and Charges for Water User Agencies" Resolution (this Resolution changes from time to time and is currently Resolution 2876). Only retail agencies that had Metropolitan water deliveries in the WSAP base year, and thus contributed to the amount of Metropolitan water allocated to Western, will be included in the underutilization reallocation calculation described in this paragraph.

No billing or assessment of surcharges to retail agencies will take place until the end of the twelve-month allocation year unless Western at its sole discretion determines that significant surcharges are probable. In this latter case, Western will use an equitable method of invoicing all or a portion of such anticipated surcharges to

retail agencies exceeding their individual allocation. This invoicing will be done prior to the end of the allocation year. At the end of the allocation year and after being assessed any surcharges by Metropolitan, Western will reconcile any collected surcharge revenue and issue invoices or credit memos to retail agencies accordingly, with invoice payment terms consistent with those described in the current applicable Resolution (referenced in the previous paragraph). The purpose of this latter provision is to reduce Western’s risk from collecting significant receivable amounts after the end of the allocation year. If at the end of the allocation year Western does not incur any surcharges from Metropolitan, then individual retail agencies will not be invoiced for surcharges (or will be refunded any surcharges paid in advance of year-end).

Metropolitan’s surcharge is based on the costs that Metropolitan and its member agencies are incurring to implement outdoor water use reductions through turf removal programs. The surcharge is designed to provide a price signal based on the marginal conservation costs incurred to reduce water use in dry and shortage years. Any revenues collected by Metropolitan from the surcharge would be used to fund the implementation of the Turf Removal Program, or other similar programs designed to conserve water and reduce future demands.

Metropolitan is currently paying \$2 per square foot of turf removed. The estimated water savings is 44 gallons per year for each square foot of turf removed for a period of ten years. Based on this savings rate, the estimated cost of the program is \$1,480 per acre-foot. Water use between 100 percent and 115 percent of a member agency’s water supply allocations would be charged with a surcharge of \$1,480 per acre-foot. Water use greater than 115 percent would be charged two times the surcharge or \$2,960 per acre-foot. Two times the surcharge would allow the funding of additional turf removal and conservation programs to conserve additional water and further reduce demand or, if appropriate, allow for a higher per square foot incentive payment. The surcharge rates are assessed in addition to the normal rates for Metropolitan water purchases. The penalty rate structure is summarized in the table below:

Water Use	Allocation Surcharge In Addition to Cost of Water
100% of Allocation	\$0
Between 100% & 115%	\$1,480
Greater than 115%	\$2,960

Below are three potential scenarios related to the assessment of the surcharge:

Scenario 1: Retail agency water deliveries are less than Western’s Metropolitan allocation. The result after the allocation year would be that retail agencies would not owe any surcharges even if agencies are over their individual allocation.

Scenario 2: Retail agency water deliveries are over Western’s Metropolitan allocation, but less than 115 percent. The \$1,480 per acre-foot surcharge would be assessed only to retail agencies that exceed their individual allocation after taking into consideration the proration of underutilized allocation.

Scenario 3: Retail agency water deliveries are over Western’s Metropolitan allocation by more than 115 percent with individual agencies’ exceedance varying. First, underutilized allocation would be prorated to the water deliveries that are over by 100 and 115 percent, with the balance assessed a surcharge of \$1,480 per acre-foot. Any water remaining that exceeds 115 percent would be assessed a surcharge of \$2,960 per acre-foot (two times \$1,480).

Appendix A Wholesale Customer Allocation by Shortage Level

Shortage Level 1: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	
Import Minimum Allocation	82.7	13,601.3	475.2	15,381.3	2,851.0	10.6	165.9	16,487.8	18,173.9	67,237.2	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	0.6%	1.1%	2.5%	1.5%	2.5%	2.5%	0.1%	1.6%	2.0%	1.4%	
Retail Impact Adjustment CREDIT	0.5	155.7	12.8	255.1	77.1	0.3	0.1	279.7	383.4	1,031.2	
Import Allocation with Retail Credit	83.3	13,757.0	488.0	15,636.5	2,928.0	10.9	166.0	16,767.5	18,557.3	68,268.4	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 5% 33.3%
Demand Hardening Credit	5	886	0	1,097	176	0	5	1,029	1,088	4,420	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	88	14,643	488	16,734	3,104	11	171	17,797	19,646	72,689	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 1. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 2: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	
Import Minimum Allocation	76.0	12,498.5	436.6	14,134.2	2,619.8	9.7	152.4	15,151.0	16,700.4	61,785.5	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	1.2%	2.1%	5.0%	3.1%	5.0%	5.0%	0.1%	3.1%	3.9%	2.8%	
Retail Impact Adjustment CREDIT	1.0	311.4	25.7	510.3	154.1	0.6	0.2	559.4	766.8	2,062.4	
Import Allocation with Retail Credit	77.1	12,809.9	462.3	14,644.5	2,773.9	10.3	152.6	15,710.4	17,467.2	63,847.9	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 10% 33.3%
Demand Hardening Credit	10	1,772	0	2,194	351	0	11	2,059	2,177	8,841	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	87	14,582	462	16,839	3,125	10	163	17,769	19,644	72,689	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 2. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 3: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	77.5%	77.5%	77.5%	77.5%	77.5%	77.5%	77.5%	77.5%	77.5%	77.5%	
Import Minimum Allocation	69.3	11,395.7	398.1	12,887.1	2,388.7	8.9	139.0	13,814.1	15,226.8	56,333.9	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	1.8%	3.2%	7.5%	4.6%	7.5%	7.5%	0.2%	4.7%	5.9%	4.3%	
Retail Impact Adjustment CREDIT	1.6	467.1	38.5	765.4	231.2	0.9	0.3	839.2	1,150.2	3,093.6	
Import Allocation with Retail Credit	70.9	11,862.8	436.6	13,652.5	2,619.8	9.7	139.3	14,653.3	16,377.0	59,427.4	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 15% 33.3%
Demand Hardening Credit	13	2,412	0	2,986	478	0	14	2,802	2,962	12,068	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	84	14,275	437	16,639	3,098	10	154	17,455	19,339	71,496	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 3. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 4: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	
Import Minimum Allocation	62.6	10,292.9	359.6	11,639.9	2,157.5	8.0	125.5	12,477.3	13,753.2	50,882.2	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	2.3%	4.2%	10.0%	6.1%	10.0%	10.0%	0.2%	6.3%	7.8%	5.7%	
Retail Impact Adjustment CREDIT	2.1	622.8	51.4	1,020.5	308.2	1.1	0.4	1,118.9	1,533.6	4,124.8	
Import Allocation with Retail Credit	64.7	10,915.6	411.0	12,660.5	2,465.7	9.2	125.9	13,596.2	15,286.9	55,007.0	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 20% 33.3%
Demand Hardening Credit	16	2,883	0	3,570	571	0	17	3,350	3,541	14,482	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	81	13,799	411	16,230	3,037	9	143	16,946	18,828	69,489	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 4. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 5: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	
Import Minimum Allocation	55.9	9,190.0	321.1	10,392.8	1,926.3	7.2	112.1	11,140.4	12,279.7	45,430.5	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	2.9%	5.3%	12.5%	7.7%	12.5%	12.5%	0.3%	7.8%	9.8%	7.1%	
Retail Impact Adjustment CREDIT	2.6	778.5	64.2	1,275.7	385.3	1.4	0.5	1,398.6	1,917.0	5,156.0	
Import Allocation with Retail Credit	58.5	9,968.5	385.3	11,668.5	2,311.6	8.6	112.5	12,539.0	14,196.7	50,586.5	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 25% 33.3%
Demand Hardening Credit	19	3,354	0	4,153	664	0	20	3,897	4,120	16,896	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	77	13,323	385	15,822	2,976	9	133	16,436	18,317	67,482	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 5. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 6: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	
Import Minimum Allocation	49.2	8,087.2	282.5	9,145.7	1,695.2	6.3	98.6	9,803.6	10,806.1	39,978.9	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	3.5%	6.4%	15.0%	9.2%	15.0%	15.0%	0.3%	9.4%	11.7%	8.5%	
Retail Impact Adjustment CREDIT	3.1	934.2	77.1	1,530.8	462.3	1.7	0.6	1,678.3	2,300.5	6,187.2	
Import Allocation with Retail Credit	52.3	9,021.4	359.6	10,676.4	2,157.5	8.0	99.2	11,481.9	13,106.6	46,166.0	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 30% 33.3%
Demand Hardening Credit	21	3,826	0	4,737	758	0	23	4,445	4,699	19,309	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	74	12,847	360	15,413	2,915	8	122	15,927	17,806	65,475	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 6. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 7: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%	
Import Minimum Allocation	42.5	6,984.4	244.0	7,898.5	1,464.0	5.4	85.2	8,466.7	9,332.6	34,527.2	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	4.1%	7.4%	17.5%	10.7%	17.5%	17.5%	0.4%	11.0%	13.7%	9.9%	
Retail Impact Adjustment CREDIT	3.7	1,089.9	89.9	1,785.9	539.4	2.0	0.6	1,958.1	2,683.9	7,218.4	
Import Allocation with Retail Credit	46.2	8,074.3	333.9	9,684.4	2,003.4	7.4	85.8	10,424.8	12,016.4	41,745.6	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 35% 33.3%
Demand Hardening Credit	24	4,297	0	5,320	851	0	26	4,992	5,278	21,723	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	70	12,371	334	15,005	2,855	7	111	15,417	17,294	63,469	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 7. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 8: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	
Import Minimum Allocation	35.8	5,881.6	205.5	6,651.4	1,232.9	4.6	71.7	7,129.9	7,859.0	29,075.5	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	4.7%	8.5%	20.0%	12.3%	20.0%	20.0%	0.4%	12.6%	15.6%	11.3%	
Retail Impact Adjustment CREDIT	4.2	1,245.6	102.7	2,041.1	616.4	2.3	0.7	2,237.8	3,067.3	8,249.6	
Import Allocation with Retail Credit	40.0	7,127.2	308.2	8,692.4	1,849.3	6.9	72.5	9,367.7	10,926.3	37,325.1	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 40% 33.3%
Demand Hardening Credit	26	4,768	0	5,904	945	0	28	5,540	5,857	24,137	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	66	11,896	308	14,596	2,794	7	101	14,907	16,783	61,462	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 8. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 9: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	
Import Minimum Allocation	29.1	4,778.8	167.0	5,404.3	1,001.7	3.7	58.3	5,793.0	6,385.4	23,623.9	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	5.3%	9.5%	22.5%	13.8%	22.5%	22.5%	0.5%	14.1%	17.6%	12.8%	
Retail Impact Adjustment CREDIT	4.7	1,401.3	115.6	2,296.2	693.5	2.6	0.8	2,517.5	3,450.7	9,280.7	
Import Allocation with Retail Credit	33.8	6,180.1	282.5	7,700.4	1,695.2	6.3	59.1	8,310.5	9,836.1	32,904.6	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 45% 33.3%
Demand Hardening Credit	29	5,240	0	6,488	1,038	0	31	6,087	6,436	26,550	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	63	11,420	283	14,188	2,733	6	90	14,398	16,272	59,455	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 9. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Shortage Level 10: Calculations Spreadsheet

	BOX SPRINGS	CORONA	EAGLE VALLEY	EVMWD	LLWD	MWD	NORCO	RANCHO	WESTERN	TOTAL	
BASE PERIOD DEMAND											
Base Period Import Supplies (AVG FY13 & FY14)	86	15,518	514	19,214	3,074	11	93	18,029	19,060	75,599	
Base Period Local Supplies (AVG FY13 & FY14)	295	19,177	0	7,832	0	0	8,651	10,562	6,136	52,653	
Base Period Total Demand	380	34,696	514	27,047	3,074	11	8,743	28,591	25,196	128,252	
ALLOCATION YEAR DEMAND ADJUSTMENT											
Base Period Average Population	3,300	158,611	0	139,599	19,962	0	27,063	24,742	94,807	468,083	
% of growth	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	
Allocation Year Population	3,337	160,390	0	141,165	20,185	0	27,367	25,019	95,871	473,334	
GPCD Applied to Growth	104	159	0	159	138	0	159	159	159	159	
Demand Growth	4.29	317.71	0.00	279.63	34.62	0.00	54.21	49.56	189.91	938.00	
LESS Growth in Conservation & Recycling	3.26	297.17	0.00	231.66	26.33	0.00	74.89	244.89	215.81	1094.00	
Adjusted Allocation Year Demand	381	34,716	514	27,094	3,082	11	8,722	28,396	25,170	128,096	
ALLOCATION YEAR IMPORT DEMAND											
Allocation Year Local Supplies (FY2014)	292	20,012	0	10,466	0	0	8,543	10,571	5,523	55,407	
Allocation Year Imported Demand	89	14,704	514	16,628	3,082	11	179	17,825	19,647	72,689	
IMPORT MINIMUM ALLOCATION											
Import Minimum Percentage	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	
Import Minimum Allocation	22.4	3,676.0	128.4	4,157.1	770.5	2.9	44.8	4,456.2	4,911.9	18,172.2	
RETAIL IMPACT ADJUSTMENT CREDIT¹											
Dependence on Metropolitan	23%	42%	100%	61%	100%	100%	2%	63%	78%	57%	
Retail Impact Adjustment Allocation	5.9%	10.6%	25.0%	15.3%	25.0%	25.0%	0.5%	15.7%	19.5%	14.2%	
Retail Impact Adjustment CREDIT	5.2	1,557.0	128.4	2,551.3	770.5	2.9	0.9	2,797.2	3,834.1	10,311.9	
Import Allocation with Retail Credit	27.6	5,233.0	256.9	6,708.4	1,541.1	5.7	45.8	7,253.4	8,746.0	28,484.2	
DEMAND HARDENING CREDIT²											
<p>1. The MWD Retail Impact Adjustment Credit, when applied to the individual water agencies within Western's general service area, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such the amount of water over allocated is subtracted from the total Demand Hardening Credit.</p> <p>2. The MWD Conservation Demand Hardening Credit methodology, when applied to the various GPCD values and GPCD changes at the local level with significantly lower water demands, results in individual agency allocations that exceed the total wholesale allocation from MWD. As such, the wholesale Demand Hardening Credit has been divided among the urban retail water suppliers in proportion to the base period demand for imported water relative to the total imported water demand for all urban retail water suppliers.</p>										Base GPCD Allocation Year GPCD Change in GPCD Acre-Foot Change Regional Shortage Percentage GPCD Percent Reduction	362 242 120 63,837 50% 33.3%
Demand Hardening Credit	32	5,711	0	7,071	1,131	0	34	6,635	7,015	28,964	
TOTAL DAP IMPORT ALLOCATION											
Total DAP Allocation	59	10,944	257	13,780	2,672	6	80	13,888	15,760	57,448	

The table above illustrates the calculation of the estimated import water supply available to each water supplier within Western's service area during DAP Shortage Level 10. All values are estimates as the actual volumes of water available to each agency are ultimately dependent on the certified production of local supplies throughout Western's import agency region. The final allocation will be reconciled at the completion of each fiscal year during which a water allocation is in place.

Appendix B Overview of the Metropolitan Water District Shortage Allocation Plan

Metropolitan's WSAP is the basis for allocation of shortages in supplies to member agencies should Metropolitan be unable to meet total firm demands. The first WSAP was prepared in 2007 due to dry conditions and uncertainty about future pumping operations from the State Water Project caused by fishery protection measures in the Sacramento-San Joaquin Bay-Delta. Since 2007, Metropolitan staff worked jointly with the member agency managers and staff to revise the plan. In December of 2014, the Metropolitan Board of Directors adopted the revisions as described later in this appendix.

The WSAP is based upon the 1999 Water Surplus and Drought Management Plan (WSDM Plan), which introduced the concept of using a base period to estimate water needs under an allocation.

Water Surplus and Drought Management Plan

The WSDM is the drought management plan that Metropolitan currently operates under which addresses both drought actions and water surplus actions. However, a water allocation methodology in the event "rationing" becomes necessary is not included in the WSDM Plan.

The following are the guiding principle, supporting principles and implementation goals of the WSDM Plan:

Guiding Principle

- Metropolitan will encourage storage of water during periods of surplus and work jointly with its Member Agencies to minimize the impacts of water shortages on the region's retail consumers and economy during periods of shortage.

Supporting Principles

- Maintain an ongoing coordinated effort among Metropolitan and its Member Agencies to encourage efficient water use and cost-effective local resource.
- Encourage local and regional storage during periods of surplus and use of storage during periods of shortage.
- Manage and operate Metropolitan's regional storage and delivery system in coordination with local facilities to capture and store surplus water in local groundwater and surface reservoirs.
- Arrange for secure sources of additional water from outside the region for use during periods of shortage.
- Call upon sources of additional water from outside the region and water stored locally to meet the needs of consumers and protect the economy during periods of shortage.

WSDM Plan Implementation Goals

- Avoid mandatory import water allocations to the extent practicable.
- Equitably allocate imported water on the basis of agencies' needs. Considerations to create an equitable allocation of imported water may include:
 - Impact on retail consumers and economy
 - Reclamation/Recycling
 - Conservation
 - Population and economic growth
 - Investment in local resources
 - Change and/or loss of local supply
 - Participation in Metropolitan's Non-firm (interruptible) Programs
 - Investment in Metropolitan's facilities
- Encourage storage of surplus supplies to mitigate shortages and improve water quality.⁹

Although an allocation method was not adopted, a draft plan was devised and specific concepts of an allocation are laid out in the WSDM Plan. These concepts include an overall policy objective of the allocation method as follows: "...to minimize the impacts to any one agency and the region as a whole. To meet that objective, the method of allocating firm imported supply will account for each agency's:

- demands on Metropolitan,
- local resources, and
- total retail demands."¹⁰

Water sales to an agency up to the amount allocated will be at the prevailing full service rate. Deliveries for water use from 100 to 102 percent of the allocation would be charged the prevailing full service rate plus \$175 per acre-foot (this cost is similar to the cost of Governors Water Bank water offered for sale in the 1987–92 drought). Water deliveries in excess of 102 percent of the target amount would be charged three times the full service rate.

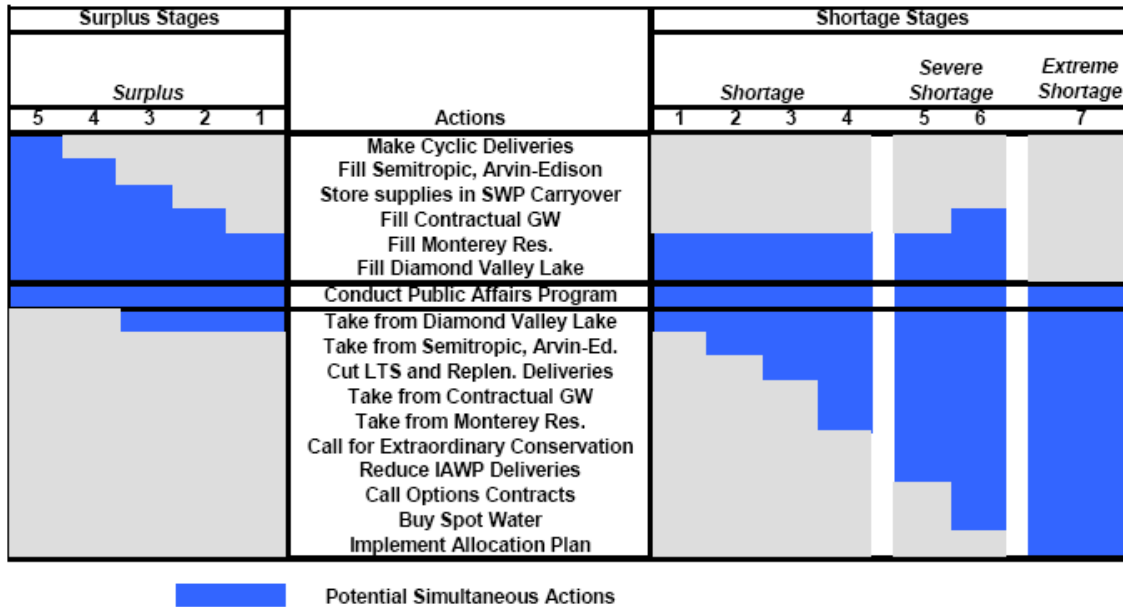
The WSDM Plan has four resource stages in which actions fall. These resource stages are:

- **Surplus:** Supplies are sufficient to allow Metropolitan to meet Full Service demands, make deliveries to all interruptible programs (replenishment, long-term seasonal storage, and agricultural deliveries), and deliver water to regional and local facilities for storage.
- **Shortage:** Supplies are sufficient to allow Metropolitan to meet Full Service demands and make partial or full deliveries to interruptible programs, sometimes using stored water and voluntary water transfers.
- **Severe Shortage:** Supplies are insufficient and Metropolitan is required to make withdrawals from storage, call on its water transfers, and possibly call for extraordinary drought conservation and reduce deliveries under the IAWP.
- **Extreme Shortage:** Supplies are insufficient and Metropolitan is required to allocate available imported supplies.¹¹

Based on the resource stage that Metropolitan is in, varying actions may occur. These actions are shown in Figure 1, below, as developed by Metropolitan. The matrix acts as a “framework.” Actual response would be based on conditions at the time of need.

Figure 3-1: Sequence of WSDM Plan Water Resource Management Steps

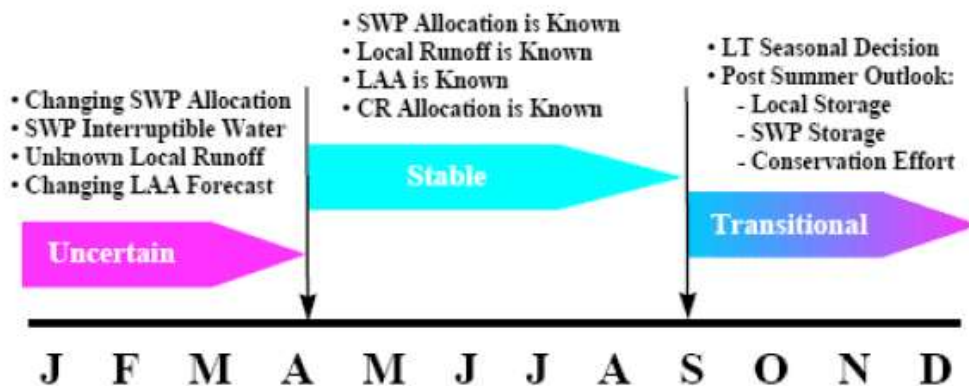
Figure 1: Sequence of WSDM Plan Water Resource Management Steps



The matrix is read from the center of the “Actions” column to the right or left. If Metropolitan is in a surplus stage, it would be read from the center up and to the left. If Metropolitan is in shortage stages, it would be read from the center down and to the right. Metropolitan’s General Manager has authority to act on all surplus actions and shortage actions 1 through 4. Metropolitan’s Board of Directors must approve actions 5 through 7.

The timeline below, from the WSDM Plan, shows a hypothetical shortage year.¹²

Figure 3-2: Shortage Year Timeline



From January through April, supplies are uncertain. The State Water Project (SWP) allocation is changing based on hydrology as well as the Los Angeles Aqueduct. From May through the end of September, supplies are known and actions have been taken in response to those known supplies. From October through December, a transitional period develops where there is uncertainty on the availability of supplies for the following period, and a decision is made on whether to offer long-term storage deliveries to member agencies as well as assess local storage, SWP storage and conservation efforts that have occurred.

A Drought Program Officer (DPO) will administer the public outreach programs. The DPO will be responsible for coordinating the various activities during a drought.

2007 Metropolitan Shortage Allocation Plan

Metropolitan's November 20, 2007 Board of Directors letter on the Draft Metropolitan Proposed Shortage Allocation Plan identifies the following central objectives of the Plan:

1. Address retail demands and wholesale water needs in the allocation year;
2. Adjust for factors such as population or economic growth, demand hardening, conservation savings, local investment, and the need for wholesale imported water; and
3. Employ an allocation formula that is as equitable as possible on the wholesale level while helping minimize hardships experienced by individuals and by the regional economy at the retail level.

The Plan employs a "two promise method" for supply allocation to ensure that:

1. On a retail level, shortages do not exceed the total Metropolitan percentage shortage (Retail Promise).
2. On a wholesale level, shortages do not exceed one and a half times the total Metropolitan percentage shortage (Wholesale Promise).

Key elements of the plan include:

- **Base Period** – Use of historical data is needed to estimate retail demands, local supplies, and wholesale water needs. The Plan uses a three-year average historical period as its base, with the initial period being 2004 through 2006. It is understood that this base period will be updated or adjusted as time progresses.
- **Growth Adjustment** – Estimates of retail demands need to be adjusted for growth that occurred between an allocation year and the base period. The Proposal uses county-level estimates of average annual growth in population as a proxy for member agency growth. Agencies will also have a choice to use a weighted average of population and job growth instead of just population.
- **Local Supply Adjustment** – Estimates of local supplies need to be adjusted for gains, losses, and extraordinary increases. These adjustments are critical to having reasonable estimates of total retail water needs.

- **Demand Hardening** – The Plan recognizes that significant increases in non-potable recycling and conservation savings devices can harden demands, and make additional reductions in water use more difficult to achieve. To address hardening due to non-potable recycling, non-potable recycling deliveries and the associated demands are not included in the allocation formula, thereby making all elements of the plan applicable to potable water uses only. To address hardening due to conservation, the Plan provides a credit based on the amount of conservation savings within a member agency and the regional shortage level declared by Metropolitan.
- **Depth of Shortage** – The Plan treats shallow shortages, defined as regional shortages up to ten percent, differently than deeper shortages. In shallow shortages, reductions in Metropolitan supplies will be done on an across-the-board basis, with adjustments for conservation demand hardening. This means that severely disparate impacts at a retail level are not addressed until regional shortages are greater than ten percent. At that point, the Plan employs an allocation formula that is equitable on the wholesale level while helping to minimize impacts to the regional economy from disparate shortages at the retail level.

Allocation Procedure

The shortage allocation formula has been developed for ten shortage levels from 5 to 50 percent.

1	5%	92.50%	0.00%	30%
2	10%	85.00%	0.00%	30%
3	15%	77.50%	7.50%	40%
4	20%	70.00%	10.00%	50%
5	25%	62.50%	12.50%	75%
6	30%	55.00%	15.00%	90%
7	35%	47.50%	17.50%	100%
8	40%	40.00%	20.00%	100%
9	45%	32.50%	22.50%	100%
10	50%	25.00%	25.00%	100%

Allocation Period

The allocation period covers twelve consecutive months, from July of a given year through the following June. This period was selected by Metropolitan so as to minimize the impacts of varying SWP allocations. It was also selected to provide member agencies with sufficient time to implement their outreach strategies and rate modifications.

Setting the Regional Shortage Level

Metropolitan staff shall be responsible for recommending a Regional Shortage Level for Board consideration. The final recommendation shall be based on water supply availability and Metropolitan water supply management actions, storage, and transfer operations that are consistent with those outlined in the WSDM Plan adopted by the Board in 1999, and the monthly status reports provided to the Water Planning and Stewardship Committee. Metropolitan’s Board of Directors, through the Water Planning and Stewardship Committee, shall be responsible for approving the final Regional Shortage Level at its April meeting. By the April meeting, the majority of the winter snowfall accumulation period will have passed, and will allow staff to make an allocation based on a stable supply picture. Barring

unforeseen large-scale circumstances, the shortage level will be put in place for the entire allocation period without change. This will allow a stable planning platform for the agencies.

Allocation Appeals Process

An appeals process will be necessary for the administration of any changes or corrections to an agency's allocation. Metropolitan shall designate an Appeals Liaison as the official point of contact for all information and inquiries regarding appeals. Basis for appeals claims can include but are not limited to:

- Adjusting erroneous historical data used in base year calculations
- Adjusting for unforeseen loss or gain in local supply
- Adjusting for extraordinary increases in local supply

Small appeals, defined as those that would change an agency allocation by a threshold of less than 10 percent and less than 5,000 acre-feet, shall be evaluated and approved or denied by Metropolitan staff determination. For process transparency, Metropolitan staff shall provide a report to the Board of Directors on all submitted appeals, including the basis for determination of the outcome of the appeal. Member Agencies may request to forward appeals that are denied by Metropolitan staff to the Board of Directors through the Water Planning and Stewardship Committee for final resolution. For large appeals, defined as those that would change an agency allocation by a threshold of 10 percent and at least 5,000 acre-feet, Metropolitan staff shall refer the appeal to the Board of Directors through the Water Planning and Stewardship Committee for approval.

Allocation Penalty Rates

Member agency allocations shall be enforced through a penalty rate structure. The recommended penalty rate structure is an ascending block structure. This structure provides a lower penalty for minor overuse of allocations, and a higher penalty for major overuse of allocations.

Changes since the 2007 Plan

The WSAP has undergone a series of updates since the plan was first developed in 2007 and implemented in 2009. The most recent update approved in December of 2014 includes the following changes:

- Replaced the WSAP Base Period with the Fiscal Years ending 2013 and 2014 and included a credit process for mitigating for reduced local demands as a result of restrictions in place during the new Base Period;
- Replaced the method for calculating Conservation Demand Hardening;
- Added a separate allocation for drought-impacted groundwater basins; and
- Replaced the WSAP Penalty Rates with an Allocation Surcharge based on the marginal costs of water conservation programs.

Updated Base Period

The WSAP “Base Period” is used to determine the retail consumptive water demands for each member agency. The Base Period retail demand is adjusted for growth in population, conservation savings, and non-potable recycling production occurring from the base period to the year in which an allocation is declared (Allocation Year). The recent update replaces the WSAP Base Period of 2004–2006 with Fiscal Years ending 2013 and 2014. The change provides a more up-to-date estimate of current retail consumptive water demand.

Western’s complete general water service area Base Period consumptive water demands at the time of Metropolitan Board adoption are summarized in the following table.

Local Supplies		MWD Purchases		Retail Demand		Allocation Year 2015		
FY 2012-2013	FY 2013-2014	FY 2012-2013	FY 2013-2014	FY 2012-2013	FY 2013-2014	Retail Demand	Local Supply	WSAP Baseline
186,497	183,858	68,457	75,910	260,997	259,768	261,793	183,858	77,934

Demand Hardening Methodology

Conservation Demand Hardening occurs at the retail water use level as consumers install more conservation saving devices and participating in available programs. In order to estimate conservation savings, each member agency will establish a historical baseline GPCD calculated in a manner consistent with California Senate Bill SBx7-7. Reductions from the baseline GPCD to the Allocation Year would be the basis used to calculate the equivalent conservation savings in acre-feet. The Conservation Demand Hardening credit will be based on an initial 10 percent of the GPCD-based Conservation savings plus an additional 5 percent for each level of Regional Shortage set by the Board of Directors during implementation of the WSAP. The credit will also be adjusted for:

- overall percentage reduction in retail water demand, and
- Western’s dependence on Metropolitan.

This provides a base demand hardening credit equal to 10 percent of conservation savings and increases the credit as deeper shortages occur, which is when conservation demand hardening has a bigger impact on the retail consumer. The credit also increases based on the percentage of an agency’s demand that was reduced through conservation. This accounts for increased hardening that occurs as increasing amounts of conservation are implemented. Lastly, the credit is scaled to the member agency’s dependence on Metropolitan to ensure that credits are being applied to the proportion of water demand that is being affected by reductions in Metropolitan supply.

Separate Allocation for Drought-Impacted Groundwater Basins

Groundwater basins help provide vital local supplies that can buffer the region from short-term drought impacts. Longer droughts can result in reductions to the many sources of water that replenish groundwater basins, resulting in lower basin levels and potential impacts to the overlying consumptive demands. Limited imported deliveries under these conditions may help avoid impacts to the basins that may be drawn out of their normal operating range or subject to water quality or regulatory impacts. Metropolitan provides a limited allocation for drought impacted groundwater basins based on the following framework:

- Metropolitan staff will meet with a requesting member agency and the appropriate groundwater basin manager to document whether the basin is in one of the following conditions:
 - Groundwater basin overdraft conditions that will result in water levels being outside normal operating ranges during the WSAP allocation period; or
 - Violations of groundwater basin water quality and/or regulatory parameters that would occur without imported deliveries.
- Metropolitan will provide an allocation based on the verified need for groundwater replenishment. The allocation would start with a member agency's ten-year average purchases of imported groundwater replenishment supplies (excluding years in which deliveries were curtailed). The amount would then be reduced by the declared WSAP Regional Shortage Level (5 percent for each Regional Shortage Level).
- Any allocation provided under this provision for drought impacted groundwater basins is intended to help support and maintain groundwater production for consumptive use. As such, a member agency receiving an allocation under this provision will be expected to maintain groundwater production levels equivalent to the average pumping in the Base Period. Any adjustments to a member agency's M&I allocation due to lower groundwater production would be reduced by deliveries made under this provision.
- Agencies for which this allocation does not provide sufficient supplies for the needs of the groundwater basin may use the WSAP Appeals Process to request additional supply (subject to Board approval). The appeal should include a Groundwater Management Plan that documents the need for additional supplies according to the following tenets:
 - Maintenance of groundwater production levels;
 - Maintenance of, or reducing the further decline of, groundwater levels;
 - Maintenance of key water quality factors/indicators;
 - Avoidance of permanent impacts to groundwater infrastructure or geologic features, and;
 - Consideration of severe and/or inequitable financial impacts.

Final amounts and allocations will be determined following consultation with groundwater basin managers and member agencies.

WSAP Penalty Rates

The Allocation Surcharge is based on the costs that Metropolitan and its member agencies are incurring to implement outdoor water use reductions through turf removal programs. The Allocation Surcharge is designed to provide a price signal based on the marginal conservation costs incurred to reduce water use in dry and shortage years. Any revenues collected from the Allocation Surcharge would be used to fund the implementation of the Turf Removal program or other similar programs designed to conserve water and reduce future demands.

- The Allocation Surcharge is based on Metropolitan's current cost of the turf removal program. Metropolitan is currently paying \$2 per square foot of turf removed. The estimated water

savings is 44 gallons per year for each square foot of turf removed for a period of ten years. Based on this savings rate, the estimated cost of the program is \$1,480 per acre-foot.

- Water use between 100 percent and 115 percent of WSAP supply allocations is charged with the Allocation Surcharge of \$1,480 per acre-foot. Water use greater than 115 percent of WSAP supply allocations is charged two times the Allocation Surcharge or \$2,960 per acre-foot. Two times the Allocation Surcharge provides funding for additional turf removal and conservation programs to conserve additional water and further reduce demand or, if appropriate, allow for a higher per square foot incentive payment.